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ABSTRACT

NASIC (Northeast Academic Science Information Center) was conceived by the New England Board of Higher Education (NEBHE) and funded by the National Science Foundation to promote the increased and more effective use of machine-readable bibliographic information resources by the academic community of the Northeast. In this first volume of a four-volume report, the first year's activities of NASIC are reviewed. The work, which was directed toward implementing computerized search capabilities in university libraries, developed through an experimental service operation at the Massachusetts Institute of Technology (MIT) library the knowledge and experience to: (1) assist other libraries in this implementation process, (2) develop programs of training for library staff members, (3) direct activities for user education and service promotion, and (4) recommend procedures for effective service provision. (JY)

ED 094754

NORTHEAST ACADEMIC SCIENCE INFORMATION CENTER (NASIC)

PHASE I REPORT

(March 1973 - February 1974)

VOLUME 1

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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I. INTRODUCTION

In November 1972, the New England Board of Higher Education (NEBHE) submitted for consideration by the Office of Science Information Service of the National Science Foundation a proposal to develop and implement a science information center to serve the research community of the ten-state Northeast region. This proposed Northeast Academic Science Information Center (NASIC) was intended to promote the increased and more effective use of machine-readable bibliographic information resources -- specifically, the massive computerized data bases produced by government agencies and professional societies and the processing capabilities at several information centers across the country -- to support the information needs of the academic research community of the region.

The Board perceived a need for an ongoing program that could make available the benefits of computer-processed bibliographic information without expending resources for development of redundant processing capability and hardware. The Board further perceived the university library as the appropriate locus for the role of interface between the researcher with his need for information and the data base processor with his capability of providing such information, such role being a logical extension of the library's traditional reference role. These perceptions were shared by the membership of the New England Library Information Network (NELINET) and by the Association of Research Libraries (ARL) which, along with the administrations of several major universities in the region, supported the submission of the NASIC proposal to the National Science Foundation. The proposal defined twelve objectives to be accomplished over the

three-year NASIC development period:

1. Identification and evaluation of the management structures, technical processes, and operating procedures functioning at the several existing data centers in the nation which utilize machine-readable information bases.
2. Analysis and development of the role of the academic library in providing information services from machine-readable data bases in a university research environment.
3. Development of increased university and library management capability in the planning, organization, staffing, policy making and financing of machine-based information services.
4. Design of guidelines for integrating library and computerized information services in the university.
5. Definition and explication of evaluation criteria for software acceptability, examination of available software and documentation for conformity to these criteria, and provision of acceptable alternatives where necessary.
6. Assessment of the depth and extent of the academic market for machine-based scientific research information within the Northeast region.
7. Development of procedures for the training of specialized institutional personnel capable of local management and operation of relevent data base processing and delivery, and for the recruitment and orientation of local users of these information services.
8. Identification of marketing strategies for existing and proposed information services.

9. Testing these strategies at several academic locations throughout the region.
10. Development of a capability to disseminate machine-readable services to faculty, researchers and students at academic institutions as a logical extension of present user services programs of participating academic libraries.
11. Development of a capability to provide for the transferability of pertinent software, documentation, user manuals, and management procedures to other centers in North America.
12. Development of a structure and specification of procedures for operating a regional academic science information center for the Northeast, which will increase the effective utilization of machine-readable data bases in the region.

It was postulated that the achievement of these objectives would result in the creation of a continuing operational science information center that would provide the following services to the academic research community of the Northeast:

1. Convenient and economic access to a range of valuable information services available from a large number of machine-readable data bases.
2. Stimulation of demand for the current awareness and retrospective searching services provided by existing information centers, thereby creating the economies of scale needed to increase cost effectiveness and to reduce the need for continuing external subsidies to support the operation of these centers.

3. A means for exploitation of the strengths of existing data base processing facilities and services in order to reduce redundancy and wasteful competition and to effect integration of hardware and software network systems within the region.
4. A mechanism for bringing library and research personnel together into well-planned and coordinated regional programs of staff and user education to promote the expansion and strengthening of user services at academic research libraries.
5. Continuous identification and development of new products and services of greater utility to the user.

The ultimate impact and utility of NASIC was to be measured in terms of both science research and cost benefits for the academic community of the region.

Science research benefits:

-- The number and extent of science information data bases available to researchers will be expanded.
-- Users of the system will get more complete inquiry response in shorter time.
-- Users of the system will have available a professional reference librarian dedicated to assist them to formulate inquiries and gain maximum utilization of available data.
-- Academic research libraries will be encouraged to expand their use of electronic data retrieval techniques on a network basis and thus to expand their information delivery capacities.

Cost benefits:

-- Academic research institutions will be able to provide science research personnel with greatly expanded information services at relatively low cost.

-- Cost per use will be reduced.

-- Suppliers of machine-readable data will experience an expanded market at little or no increase for development.

-- The present costs of developing and maintaining isolated and local duplicative and competitive information services will be eliminated or substantially reduced.

-- An important and new research library information delivery capacity will be developed and made operational on a self-sustaining and expanding basis.

The proposed development work was to be accomplished and directed by a professional staff team assembled for that purpose by NEBHE. Additional technical work was to be performed under contract to NEBHE by personnel of the Technical Information Program (TIP) of the MIT Libraries and the Office of University Library Management Studies of ARL. This staff was to be supplemented by consultants in the fields of information systems and library technology and would receive the advisory assistance from prominent academicians and research professionals.

In March 1973 a grant of $355,500 was awarded by the National Science Foundation to NEBHE for the first twelve months of development of the NASIC program, through February 1974. In March 1974 the Foundation awarded a supplemental grant of $448,200 (including $80,000 to be awarded in fiscal 1975) to support the remainder of the development work, through February 1976.

This document constitutes a formal report on the activities and accomplishments of the first year's work and a discussion of the implications of the progress to date on the development work to be accomplished in the remaining two years of NSF-funded activity.

II. SUMMARY AND HIGHLIGHTS

The nature of the first year of NASIC development can best be characterized as one of managerial flexibility to accommodate priority reordering, workplan revision and task modification in order to utilize effectively the knowledge and experience gained during the year in the development of the proposed regional science information center. This characterization can best be documented by several examples of task changes that both accommodated external realities and created a firmer foundation upon which to build a viable regional science information center.

Early in the year it became clear that there is no pressing need for NASIC to work toward development of a machine-readable bibliographic information processing capability within the region. Existing centers across the country indicated their willingness to provide service to academic users in the Northeast at a level that far exceeded any estimates of short run demand. For this reason, a decision was made to postpone planned efforts directed toward evaluation of software for possible importation.

The MIT contract with NEBHE, under which the software evaluation was to be undertaken, was redirected toward the early establishment of an experimental service operation, both to establish NASIC's identity in the region as a developmental rather than a research program and to obtain as much experience with alternative models of service delivery as early as possible. At the same time, the dissolution of the Technical Information Program (TIP) of the MIT Libraries led to a decision by NEBHE to contract for the services of the Electronic Systems Laboratory (ESL) of MIT, an organization that had extensive experience related to the provision of computer-based information services.

A further example of flexibility to accommodate events relates to the rapid growth during 1973 of the commercially-supplied on-line search services. An example of this rapid expansion is that of the ORBIT system of the System Development Corporation (SDC) which grew from 3 user contracts in January 1973 to 140 in January 1974, with some 35 academic institutions included in the latter figure. The commercial suppliers were also expanding their data base offerings, thus further increasing the value and consequently the marketability of their systems. Accordingly, the NASIC and MIT/ESL staffs modified their plans for development of the experimental NASIC service in the MIT Libraries to include on-line services through the SDC ORBIT system as well as batch services through the Georgia Information Dissemination Center (GIDC) at the University of Georgia.

There are several additional examples of the modification of specific tasks in order to better achieve the basic goals of NASIC. One is the continuing analysis of cost recovery alternatives in light of experience in the experimental operation at MIT, the findings of an initial market study, and the availability of on-line services through commercial suppliers. Another is the de-emphasis of U.S. Census services in recognition of the high cost of providing such services and of the existence of both commercial and university-based suppliers willing to provide service directly to users in the academic community of the Northeast. Another example is the decision to postpone any efforts to market machine-readable bibliographic information services in the industrial and commercial sectors, a decision made as a result of reduced Foundation support for the second and third years of development which precluded the staff additions necessary for experimental efforts in the nonacademic sector.

These and other task modifications constituted a reordering of NASIC priorities, a reformulation of the means by which NASIC expects to contribute towards the effective utilization of computer-based bibliographic information services in the academic community of the Northeast. The primary objectives remain in essence the increased utilization of existing information resources to serve the region's academic community, the extension of the university library's traditional reference function to include the role of interface between the user and the processing system, and the implementation of administrative and organizational arrangements to provide the NASIC user community with expanded, more convenient and perhaps somewhat less expensive machine-readable bibliographic services.

This emphasis, for reporting purposes, on modifications to the original Plan of Work does not imply that after a year of activity the NASIC program no longer resembles what was originally proposed by NEBHE. In fact, with the exception of those tasks relating to software evaluation, the NASIC staff has undertaken each of the tasks as scheduled for the first year and has initiated many activities in advance of the original plan for the second year.

For the most part, staffing the NASIC program has proceeded along the lines anticipated in the proposal. In its contract activities, however, the NASIC administration has reallocated the funds available to take into account the modification of tasks being performed by technical personnel at MIT. The budget of the contract with MIT was reduced to take into account the delayed starting date (July 1 rather than March 1 due to the dissolution of the TIP program and extensive re-organization of computer-related personnel assignments) and the modification of tasks resulting from the elimination of the software

evaluation work. The funds not allocated to MIT were then used to cover the costs of two additional contracts, the first with QEI, Inc. to develop criteria for evaluating systems and software, and the second with Capital Systems Group, Inc. to conduct an initial survey of the market for computer-based bibliographic and U.S. Census information services. The reports on the MIT/ESL, QEI and CSG contracts are attached as Appendices A, B and C, respectively.

During the course of the first year's work, NEBHE employed outside consultants for special projects related to the development of NASIC. As planned, the program utilized the services of Alan M. Rees, Associate Dean of the School of Library Science at Case Western Reserve University, and Jeffrey J. Gardner from the Office of University Library Management Studies of the Association of Research Libraries (ARL).

NEBHE also created two advisory bodies to provide guidance and assistance to the NEBHE and NASIC administrations on the progress of the program. The first group, the Advisory Board, served to provide consultation to the Executive Director of NEBHE regarding policy and directions for NASIC activity. Appointed to the NASIC Advisory Board were:

Richard DeGennaro
Director of Libraries
University of Pennsylvania

Dr. Robert W. Eisenmenger
Senior Vice President and
Director of Research
Federal Reserve Bank
Boston, Mass.

Professor Roy Kaplow
Department of Metallurgy and Materials
Science
Massachusetts Institute of Technology

Dr. Thomas E. Kurtz
Director
Kiewit Computer Center
Dartmouth College

John P. McDonald
University Librarian
University of Connecticut

Dr. Matina S. Horner
President
Radcliffe College

Because of the press of other commitments, Drs. Eisenmenger and Horner resigned from membership on the Board. Their replacements, as well as one or two additional members, will be appointed during the second year of NASIC development.

The second body, the Technical Council, was created to provide consultation to the NASIC Program Director on technical and administrative matters related to NASIC development, to assist in contract development and management, and to keep the NASIC administration current on related programs in the region. Members of this group include:

Alan M. Rees
Professor of Library Science
Case Western Reserve University

Professor J. Francis Reintjes
Electronic Systems Laboratory
Massachusetts Institute of Technology

Duane Webster
Director, Office of University
Libraries Management Systems
Association of Research Libraries

Robert Rolla
President
New England Regional Computing Program

Dr. Daniel Wilde
Director
New England Research Application Center
University of Connecticut

It is planned that this council will be expanded to include representatives of universities and university libraries at which NASIC services will be demonstrated later in the program.

The most visible achievement of the first year of NASIC development is the experimental service capability implemented at the MIT Libraries approximately 10 months earlier than originally scheduled. A product of a cooperative effort among the staffs of NASIC, MIT/ESL and the MIT Libraries, this experiment was designed to demonstrate the service orientation of NASIC and to provide a realistic model for evaluating the provision of machine-readable bibliographic information services by means of an interface between a university library and an existing information processing center.

An important aspect of this MIT experimental operation is that it was implemented in the brief period of only two and a half months from start of training to the provision of services to paying users. The experiment involved the training of six members of the library staff to provide access, initially, to three data bases (CA Condensates, ERIC and INFORM) on two systems, the SDC on-line service and the GIDC batch service. Implementation of the experimental operation required a range of prior activities, including development of operational and administrative procedures, implementation of a service promotion and demonstration strategy, development of data gathering and evaluation materials as well as training the six Information Specialists assigned to the project by the MIT Libraries. Components to be tested and evaluated included techniques for optimizing interviews between the user and the Information Specialist, promotion and marketing techniques and media, "service by appointment", and the willingness of academic users to pay the cost of computer-based services.

During the three and one-half months from mid-November through the end of February, the MIT Libraries performed a total of 29 searches for paying customers, 14 on CA Condensates, 5 on ERIC and 10 on INFORM. (In addition, searches were provided on the related but separately funded MEDLINE data service operation in the MIT Libraries.) All of the NASIC searches were on-line employing the SDC ORBIT system. There were no requests for either off-line retrospective searches or the current awareness services available through the University of Georgia GIDC.

The total number of searches performed and the lack of interest in Selective Dissemination of Information (SDI) services are both disappointing. However, to a certain extent, the absence of greater demand can be attributed to the limited services available, i.e. only three data bases and only one of those related to the science and engineering emphasis of MIT, and the academic schedule under which only February can be considered a normal month, with Thanksgiving in November, final examinations and Christmas vacation in December, and the month of January devoted to an Independent Activities Period. The addition of several data bases to the available services in spring 1974, including one or more engineering resources, is expected to have a considerable impact on the use of the experimental operational capability.

Of almost equal significance as the experimental operation, but of far less visibility, has been the work related to evaluation of alternative models for NASIC service dissemination and organization. Taking into account the previously discussed external realities of information technology, the NASIC administration has concentrated on developing realistic plans for achievement of effective utilization of computer-based bibliographic

information services in the academic community of the region. These plans included the reordering of NASIC priorities to reflect an emphasis on service dissemination through effective intermediary services rather than through development of local processing capability. The intermediary services planned for NASIC include the use of existing or proposed communications networks within the region, the provision of consultation and assistance in the implementation of computer search services, the development of effective promotional and marketing materials and techniques and, of course, the implementation of a comprehensive training program for library personnel.

The third highlight of the year's activity relates to a series of studies undertaken or contracted for by NASIC and providing a range of information useful not only to NASIC but also to institutions and organizations across the country. Included in these are a survey of information processing centers throughout the United States, the development of criteria by which to evaluate information processing systems and software, a survey of the market in the region's academic community for computer-based census and bibliographic services, and an evaluation of commercial processing capabilities within the Boston metropolitan area. These studies (attached as Appendices to this report) are valuable not only for the specific information obtained but also for the replicability of their methodology in other parts of the country.

In sum, the work of the first year of NASIC development was directed toward the establishment of a firm foundation on which an effective regional science information center could be built rather than toward the production of specific end products. The true measure of the quality of the work

performed to date will be the success of NASIC in expanding the use of machine-readable information services in the region's academic research activities during Phase 2 of the program's development.

III. TASK-BY-TASK REVIEW OF NASIC ACTIVITY IN PHASE 1

During Phase 1 (the first four quarters) of NASIC development activity, the NASIC staff has undertaken tasks outlined in the original proposal to the National Science Foundation as follows:

Task I-1 Program Staffing and Orientation

A. Staffing - During the initial months of NASIC activity, Ronald F. Miller, the Principal Investigator, provided managerial direction for the program while a national search was conducted to fill the position of Program Director. Day-to-day organizational activities were carried out by R. D. Morrison, Jr., Assistant Director, and Susan Burpee, Secretary. William R. Nugent was selected to fill the position of Program Director and he hired A. K. Ezaz as Program Assistant for Marketing and Lillian O'Hara as Secretary, the latter to replace Susan Burpee who had been promoted within the NEBHE organization. When Mr. Nugent resigned as Program Director for personal reasons at the beginning of August 1973, NEBHE appointed Dr. David M. Wax as Acting Program Director. NASIC also utilized the assistance of Marie Steeves, a NEBHE Secretary, on a part-time, as-needed basis. Effective January 1974, Dr. Wax was appointed Program Director.

At the end of the year, with the departure of Mr. Ezaz, NASIC had a stable program staff that included Ronald F. Miller, Principal Investigator; Dr. David M. Wax, Program Director; R. D. Morrison, Jr., Assistant Director; Lillian O'Hara, Secretary; and Marie Steeves, Secretary (part-time, as-needed). In addition, arrangements had been completed for the appointment, upon receipt of continued support from the National Science Foundation, of an Information Services Librarian (ISL) to the NASIC staff.

B. Contracts - During Phase 1, the NASIC administration negotiated three major contracts for technical services related to program development. The first of these, for $95,000, was with the Electronic Systems Laboratory of the Massachusetts Institute of Technology (MIT/ESL) for work leading to the development of a service capability replicable in other institutions throughout the region. A report on the work performed under this contract is attached as Appendix A. The second contract, for $10,943, was with QEI, Inc., a private consulting firm located in Bedford, Massachusetts, for work on selection and evaluation criteria for information systems and software. The QEI report is attached as Appendix B. The third contract, relating to an initial survey of the market for bibliographic and census information services in the academic, government and not-for-profit research communities of the region, was awarded in the amount of $22,148 to Capital Systems Group, Inc. of Rockville, Maryland. The CSG report is attached as Appendix C.

NASIC also employed the services of William D. Mathews, formerly Associate Director of the Technical Information Program of the MIT Libraries and recently appointed Assistant Director for Systems of the New England Library Information Network, on a short term basis for the preparation of an evaluation of the commercial computer service facilities in the Boston-Wellesley area capable of processing machine-readable data bases. The purpose of this study was to assess local processing capabilities as a possible future option for the provision of certain NASIC services. While it now appears highly unlikely that such capability will ever be required for NASIC, the report is still a useful reference tool. This report, "A Survey of Timesharing Computer Service Organizations in the Boston Area," is attached as Appendix D.

Task I-2 Review Existing Science Information Centers and Plan Institutional Survey Effort

Staff from the NASIC program, MIT/ESL and the Office of University Library Management Studies of the Association of Research Libraries developed a series of procedures and documents for the survey of science information centers throughout the country. Copies of the survey questionnaires are attached as part of Appendix E, which also includes summaries of the information gathered at the centers visited.

Task I-3 Perform Initial Literature Searches

Using the facilities of the New England Research Application Center (NERAC), a NASA-supported information processing center at Storrs, Connecticut, and with assistance from NERAC and MIT/ESL personnel, the NASIC staff developed search profiles to be run against ERIC, NTIS and NASA data bases. The searches led to the identification of 125 relevant items from the ERIC files, and 132 from the NTIS files but none from the NASA data base.

The more useful of these documents, as well as documentation from other information processing centers, were acquired and constitute the core of the collection of the NASIC library. A complete bibliography of documents related to NASIC activity, including those acquired for in-house availability, is attached as Appendix F.

Task I-4 Design Initial Strategies for Information Center Service Promotion

As a major component of the effort to provide experimental information services to a significant academic research community as early as possible in the NASIC development program, NASIC and MIT/ESL personnel developed a plan to promote NASIC services within the MIT community. This plan was

designed in anticipation of the offering of experimental services at MIT during the third quarter of program activity. The promotional strategies included utilization of a broad range of intra-institutional media including newspapers and news bulletins, specialized internal mailings, descriptive brochures and presentations at faculty and departmental meetings. The effectiveness of each of these media is being evaluated with the intent of incorporating the more successful techniques in marketing efforts at other institutions in the region.

Task I-5 Perform Initial Regional Market Analysis

This task has been divided into two components, the first working in the specific context of the MIT research community as an example of an institution heavily involved in funded research in a wide range of scientific disciplines. The second component involved a general assessment of the market at various types of institutions throughout the ten-state region.

NASIC and MIT/ESL staff worked together to analyze the MIT potential market in order to ascertain appropriate data bases for experimental service introduction and to determine disciplines and departments toward which later marketing efforts should be directed. As detailed in the MIT/ESL report (Appendix A), the original analysis included data gathering and discussions with various staff members at the Institute. The initial assessment is being updated as information from current experimental usage of NASIC services is gathered.

Under contract to NEBHE, Capital Systems Group, Inc. performed an initial evaluation of the market in the academic, government, and not-for-profit research communities for both census and bibliographic machine-readable services. This assessment involved interviews with administrators,

library directors and potential users at more than thirty academic institutions, ten state and local governmental units and fifteen non-profit institutions in the Northeast region. While the limited scope of the study precluded broad generalization of the findings, enough was learned to ascertain certain limitations within the market, specifically the absence of an extensive market in the region for additional U.S. Census services and the need to concentrate marketing efforts for bibliographic services in the major research universities rather than directing them towards the whole range of academic, governmental and not-for-profit institutions. The CSG report also raised serious questions regarding the viability of brokerage activity as a sole source of sufficient revenue to support post-grant NASIC operations. The work of CSG was of high quality, and the report (Appendix C) has been of considerable value to the NASIC management.

Task I-6 Formulate Functional Requirements for a Regional Science Information Center

By means of the survey of existing information processing centers (to be described in greater detail below), consultation with the NASIC Advisory Board and Technical Council, participation in meetings of the Interuniversity Communications Council (EDUCOM) and the Association of Scientific Information Dissemination Centers (ASIDIC), informal discussions with university administrators and library directors and intra-NEBHE staff discussions, the NASIC management has formulated policy statements defining the goals and objectives for a regional science information center. An early statement of objectives can be found in a paper, "NASIC -- A Regional Experiment in the Brokerage of Information Services," prepared by the NASIC administration and presented at the Ninth Annual Council Meeting and Conference of EDUCOM (Appendix G). The NASIC staff

received further guidance and assistance in this task of goal definition from Alan M. Rees. His paper, "Some Comments on the Present and Future Role of NASIC," is attached as Appendix H.

One of the important observations made during Phase I was that the definition of NASIC program goals and functional requirements becomes a continuing task in light of rapidly changing technology. The role of NASIC has therefore required some redefinition to accommodate the increased availability of on-line search services through commercial suppliers. And it is likely that further refinement will be necessary to take into account new advances in information processing and transfer capabilities as they occur during the subsequent years of the program.

Task I-7 Establish Acceptance Criteria for Software

Initial work on the establishment of criteria for evaluation of service systems and software was done by QEI, Inc. under contract to NEBHE (Appendix B). The events of the past year have documented the inadvisability of importation of software for the purpose of developing an off-line bibliographic information processing capability within the region. Specifically, the willingness of existing centers, such as GIDC and IITRI, to provide off-line services to users in the Northeast and the availability of commercial on-line service have reinforced arguments as to the absence of economic justification for implementing additional service processing capability within the region.

As a result, effort directed toward this task has been limited to the work done by QEI, Inc. Furthermore, Tasks I-12 Negotiate for Delivery of Relevant Software and Documentation, Task II-2 Select the Most Useful Software for Initial Operation, Task II-3 Install the Acquired Software for Testing and Analysis, Task II-4 Review the Software and Identify the

Deficiencies, and Task II-5 Design and Implement Corrective Action on Software -- in short, all the tasks related to software evaluation and importation -- have been eliminated from the NASIC Plan of Work. This means that NASIC has and will concentrate its efforts on the mediating role of promoting the use of services from existing suppliers rather than on the development of another service provision capability.

Task I-8 Identify and Describe Alternate Organizational Approaches for the Providing of Machine-Readable Data Base Services

Task I-9 Study the Usage of Machine-Readable Data Bases in the Academic Research Environment

Task I-10 Determine the Institutional Commitments, Decision Making Processes, Policies and Planning for Use of Machine-Readable Services on Campus

Task I-11 Evaluate Economic and Management Factors

These four tasks relate to the survey conducted by the NASIC staff, with the assistance of Jeffrey Gardner from the Office of University Library Management Studies of the ARL and Alan Benenfeld of MIT/ESL. The institutions and centers visited were:

Georgia Information Dissemination Center (GIDC), University of Georgia, Athens, Georgia, September 18-19, 1973

New England Research Application Center (NERAC), Storrs, Connecticut, October 4

Social Science Data Center, University of Connecticut, Storrs, Connecticut, October 5

Illinois Institute of Technology Research Institute (IITRI), Chicago, Illinois, October 18-19

Campus Based Information System (CBIS) and Knowledge Availability Systems Center (KASC), University of Pittsburgh, Pittsburgh, Pennsylvania, October 30-31

Mechanized Information Center (MIC), The Ohio State University, Columbus, Ohio, November 1-2

Stanford University Libraries, Stanford University, Stanford, California, November 26-27

Institute of Library Research, University of California, Berkeley, California, November 28

Center for Information Services (CIS), University of California, Los Angeles, California, November 28-29

University of Florida Libraries, University of Florida, Gainesville, Florida, December 12-13

North Carolina Science and Technology Research Center (NC/STRC), Research Triangle Park, North Carolina, December 14.

At each of these institutions, information was gathered describing the organization, administration, operation, utilization and economic support of the local provision of computer-based information services. Particular attention was paid to the role of the library in providing assistance to the user, to service promotion and marketing, and to alternatives for cost recovery. Each visit is summarized in a report (the two centers at the University of Pittsburgh are included in a single report, as is the case for the two campuses of the University of California), and each report has been reviewed for accuracy by the staff of the center visited. The questionnaire utilized for obtaining information and the individual reports are attached as Appendix E.

The information developed through this survey effort has been useful to NASIC management not only in the formulation of program policies but also in determination of the nature and kinds of services to be implemented. The NASIC and ARL staffs will prepare a series of reports for publication during Phase 2, to enable other interested persons, particularly university library personnel, to benefit from the information obtained through these visits.

Task I-13 Define Alternatives for the Logical Integration of Local Libraries With the Proposed Information Center

Once it had been decided that the appropriate role for NASIC was not that of a processor of services but rather that of an intermediary between existing service suppliers and academic users throughout the region, the NASIC staff undertook the task of defining the activities of the program and its relationship to local libraries. Drawing upon work of consultants, including the previously cited paper of Alan Rees (see Appendix H) and upon the experience of the staff of the NELINET and NERComP programs, the NASIC administration has developed a series of objectives that will facilitate the availability of machine-readable information services to the entire academic research community of the region. The planned activities include education, training, marketing, in-house service provision, interface between users and suppliers, and research related to expanded services and new service modes. They are defined in some detail in the Plan of Work of the Supplement to "A Proposal to Develop and Implement a Northeast Academic Science Information Center (NASIC)", submitted to the National Science Foundation by NEBHE on January 17, 1974.

Task I-14 Document Phase I Experience

This report and its attachments, along with the three previous

Quarterly Progress Reports to the Foundation, represent the completion of this task.

Task II-1 Commence Phase II Staffing

As indicated in the report on Task I-1, the NASIC staffing has become stabilized with the departure of A. K. Ezaz at the end of February 1974 and the hiring, effective upon the announcement of continued support from the Foundation, of Patricia E. Vaughan to fill the position of Information Services Librarian. Ms. Vaughan's work will include direct provision of services to users from smaller institutions and extensive effort in the marketing and library personnel training activities.

Task II-6 Evaluate Alternative Methods for Cost Recovery

The evaluation of means of obtaining sufficient income to support the NASIC program after the termination of the Foundation grant has been a major activity since the arrival of the first NASIC Director. Serious consideration has been given to a variety of alternatives and combinations of alternatives, including institutional subscriptions, charges for direct services to users, brokerage (discounts from suppliers along with markup to users) and development of unique service packages. Experience at bibliographic information processing centers across the country and with the NASIC experimental operation at the MIT Libraries bears out the contention that brokerage alone will not produce sufficient revenue within the foreseeable future to make NASIC self-supporting. This conclusion has also been reinforced by the findings reported in the market study conducted for NASIC by CSG, Inc. (Appendix C).

The growth of commercially supplied search services and their availability on a non-subscription, no-minimum basis has also had an impact on the cost recovery picture. Accordingly, a final decision regarding the alternatives

to be adopted will have to await further experience with commercial and university-based centers and a more accurate assessment of the level of user demand. In the meantime, discussions continue within NEBHE on alternative possibilities for obtaining institutional underwriting for NASIC services, either independently or under the NELINET organizational umbrella.

Task II-7 Develop Administrative and Operational Procedures

It is planned that NASIC services will be available to the region's academic users either in their local university libraries or through the NEBHE offices in Wellesley. We anticipate that most of the larger universities in the region will decide to make services available locally, utilizing existing or new library personnel to act as interface between the user and the service system. At smaller institutions, on the other hand, it appears that the level of demand will not justify the staff and equipment costs associated with a local service capability. At those institutions the library staff will function primarily to refer users to a nearby cooperating university with a service capability or to the NASIC central office located at NEBHE.

For services provided directly through the university library, the administrative andoperational procedures will have to be established locally in conformity with institutional policies and practices. The MIT model, which includes multiple service locations, service by appointment and full cost recovery, will be one of several operational options from which other institutions can choose. (For a more complete description of the MIT model, including copies of the forms and procedures under test, see Appendix A.) As part of its assistance to individual universities, the NASIC staff will support the local university and library administration in the development and implementation of appropriate procedures.

The implementation of a full service capability at the NEBHE offices is behind schedule due to a postponement in the hiring of the Information Services Librarian for the NASIC staff. This delay resulted from our inability to make a binding commitment to the desired candidate until word had been received from the Foundation that there would be grant support for Phase 2 of NASIC development. It is now planned that the initial training of two NASIC staff members in use of both on-line and batch services will be completed by the end of May 1974. During the months of April and May, effort will also be directed toward the development of administrative and operational procedures for the in-house operation so that the service capability can be instituted early in the second quarter of Phase 2.

Task II-8 Prepare and Submit First NASIC Program Annual Report

This report constitutes the completion of this task.

Task II-9 Compile Descriptions of the Initial Set of Information Service Resources to be Utilized

The MIT/ESL and NASIC staffs have completed the required data base descriptions for Chemical Abstracts Condensates, ERIC and INFORM, the first three data bases on which experimental services have been offered through the System Development Corporation and the Georgia Information Dissemination Center. As the number of data bases and access systems is increased, additional descriptions will be compiled.

NASIC plans call for the development of a multiple-system, multiple-data base ISL reference manual by September 1974, in time for the provision of demonstration services at several universities and at the NEBHE offices by the start of the fall term of the 1974-75 academic year. This activity will take place in conjunction with the completion and extension of the NASIC

training program for library personnel.

Task II-10 Develop Initial Services, User Training Programs and Related Training Aids

Task II-11 Develop a Plan to Test the Service Alternatives Selected

Task III-1 Prepare for Controlled Environment Feasibility Test

Task III-2 Conduct General Orientation Sessions at Participating Institutions

Task III-3 Conduct Training Sessions for the Information Services Librarians

Task III-4 Conduct Orientation Sessions for Potential Users

Task III-5 Review Training Session and Operational Experience and Update Procedures and Documentation as Required

Task III-6 Perform Feasibility Testing

Task III-7 Monitor Feasibility Testing Experiences

Task III-8 Evaluate Results of Feasibility Test

The NASIC decision to develop an experimental service capability as early as possible in the life of the project required that work begin on all of these tasks far earlier than originally scheduled. The NASIC experimental service operation at MIT, which evolved through a cooperative effort of staff from NASIC, MIT/ESL and the MIT Libraries, has involved the full range of development and implementation activity necessary for provision of effective bibliographic search services. This activity has included selection and training of Information Services Librarians, orientation for university administrators and library personnel, promotion efforts through a variety of media, demonstrations of service capability and utility to potential users, implementation of administrative and operational procedures, provision of services to users, and ongoing evaluation of

service operation and utilization. (For a detailed report on the experimental NASIC operation at MIT, see Appendix A.)

The successful introduction of experimental operations at MIT does not imply that this series of tasks has been completed. The Phase 2 Plan of Work calls for the introduction of demonstration service capabilities at several universities throughout the region as well as at the NEBHE offices. These demonstrations will begin in September 1974, as scheduled in the original proposal, and will be followed by a steady expansion of the NASIC service capability to all interested institutions in the region during the remainder of the development period.

With the exception of those tasks related to the software evaluation effort, all of the tasks scheduled for completion during the first year of NASIC have been undertaken. In some cases, e.g., the analysis of cost recovery alternatives, it has been necessary to postpone completion of the task to take into account unforeseen variables. Work on these tasks will be continued as long as appropriate for their effective completion.

On certain other tasks, specifically those numbered II-7 and above, effort has been initiated as part of the experimental operation at MIT weeks, and in some cases months, before originally scheduled. As previously indicated, work will continue on these tasks into the second year of NASIC development to allow for completion of the tasks in accordance with the Phase 2 Plan of Work.

IV. PLANS FOR PHASE 2

The information obtained and the experience gained during the first year of NASIC development work have led to a revision of the Plan of Work for Phase 2. This modification does not divert NASIC from the basic objectives underlying the original development and support of the program but rather relates to the means by which these objectives can best be achieved.

NASIC proposes to continue its emphasis on the dissemination of computer-based information services to the academic community through the staff and facilities of the campus library, concentrating more heavily on New England than originally contemplated, but not to the exclusion of the other four states in the Northeast. NASIC also plans, in conjunction with other programs at NEBHE, to contribute to the development of services to be provided by means of a data concentrator and to work toward the inclusion of bibliographic reference services as part of the range of services associated with the concentrator. NASIC will also undertake, on its own, research related to such areas as terminal compatibility, a link to the existing NERComP network, and a program of user education through methodology workshops.

This revision indicates the advisability of a postponement of staff effort relating to NASIC's obtaining of revenue through brokerage. This implication recognizes that there are serious drawbacks associated with a brokerage posture -- for example, the damands by suppliers for exclusive arrangements and the need to achieve rapidly quite high levels of service

usage -- and that these drawbacks will be of particular concern during the NASIC development period. But it is also recognized that there might be some potential for effective brokerage at a later date, through the creation of effective access to services not now readily available, e.g., those of SUNY, the New York Times and the Social Science Data Center, and as a result of the demand aggregation capacity associated with the development of networking capability and extensive user education.

V. VISITS AND CONFERENCES

Visits, conferences and other events attended in the interest of NASIC during the period March 1973 - February 1974 are summarized below:

1. Place: Philadelphia, Pa.

   Date: March 7-8, 1973

   Program Personnel: A.D. Ferguson, R.F. Miller, R.D. Morrison, D.M. Wax

   Personnel Contacted: ASIDIC Members

   Summary: Attended meeting of the Association of Scientific Information Dissemination Centers. NASIC Assistant Program Director was appointed to committee post relating to marketing of machine based services and user training. NASIC has been approved for associate membership status in ASIDIC.

2. Place: Tufts University, Medford, Mass.

   Date: March 28, 1973

   Program Personnel: R.D. Morrison

   Personnel Contacted: Joseph S. Komidar, University Librarian, Library Professional staff, Fredericka Santell, SIA

   Summary: Attended demonstration of Basic 70 system; discussed potential application to NASIC activities in region.

3. Place: Harvard University, Cambridge, Mass.

   Date: April 6, 1973

   Program Personnel: R.D. Morrison, D.M. Wax

   Personnel Contacted: EDUCOM members

   Summary: Attended Spring Conference of EDUCOM

4. Place: Massachusetts Institute of Technology, Cambridge, Mass.

   Date: April 7, 1973

   Program Personnel: R.D. Morrison

   Personnel Contacted: Dr. M.M. Kessler, MIT; Dr. Daniel Wilde, NERAC

   Summary: Discussion of NERAC's capability to provide bibliographic search for NASIC staff.

5. Place: Sheraton-Lincoln Inn, Worcester, Mass.

   Date: April 19, 1973

Program Personnel: R.F. Miller, A.D. Ferguson

Personnel Contacted: Academic Deans of New England State Colleges

Summary: Explained NASIC proposed operations and discussed relationship to NELINET activities.

6. Place: NEBHE, Wellesley, Mass.

Date: April 23, 1973

Program Personnel: R.D. Morrison, R.F. Miller

Personnel Contacted: J.J. Gardner, ARL; Dr. M.M. Kessler, MIT

Summary: Discussed the methodology for institutional survey and prepared a draft of data acquisition forms.

7. Place: Boston, Mass.

Date: April 26-27, 1973

Program Personnel: A.D. Ferguson, R.F. Miller, R.D. Morrison

Personnel Contacted: Executive Committee and Board Members, NEBHE

Summary: Attended fiftieth meeting of the New England Board of Higher Education. Explained NASIC's objectives, proposed operations and future plans.

8. Place: NEBHE, Wellesley, Mass.

Date: May 1, 1973

Program Personnel: A.D. Ferguson, R.F. Miller, R.D. Morrison, D.M. Wax

Personnel Contacted: NASIC Advisory Board Members

Mr. Richard DeGennaro, Director of Libraries, U. of Pennsylvania
Dr. Robert W. Eisenmenger, Senior Vice President, Federal Reserve Bank; Vice Chairman, NEBHE
Professor Roy Kaplow, Department of Metallurgy and Material Science, Massachusetts Institute of Technology
Dr. Thomas E. Kurtz, Director, Kiewit Computer Center, Dartmouth
Mr. John P. McDonald, University Librarian, U. of Connecticut

Summary: Discussions centered around NASIC progress, general problem areas, institutional support, relationship to library operations and campus computer centers, and test site selection.

9. Place: NEBHE, Wellesley, Mass.

Date: May 4, 1973

Program Personnel: A.D. Ferguson, R.F. Miller, R.D. Morrison, D.M. Wax

Personnel Contacted: NASIC Technical Council Members

Mr. Alan Rees, Professor of Library Science, Case Western Reserve University
Mr. Duane Webster, Director, Office of University Library Management Studies, ARL
Mr. Robert Rolla, President, New England Regional Computing Program
Mr. William Mathews, Massachusetts Institute of Technology

Summary: Observations and opinions expressed by the participants centered around organization matters (including the role of the council), motivational approaches to elicit institution cooperation at several levels, and a methodology for survey of market potential for NASIC services.

10. Place: New Orleans, La.

Date: May 31, 1973

Program Personnel: A.D. Ferguson

Personnel Contacted: Members of Association of Research Libraries at the 82nd Meeting of the ARL

Summary: Presented speech describing NASIC program: support, purpose, goals and planning.

11. Place: Fairfield University, Fairfield, Ct.

Date: June 6, 1973

Program Personnel: R.F. Miller, W.R. Nugent, R.D. Morrison

Personnel Contacted: Executive Committee of the New England Library Information Network (NELINET)

Summary: A presentation on the goals and objectives of NASIC.

12. Place: NERComP, Cambridge, Mass.

Date: June 7, 1973

Program Personnel: W.R. Nugent, R.D. Morrison

Personnel Contacted: Robert Rolla, President, NERComP

Summary: A discussion of the potential areas for cooperation between these two NSF-supported programs.

13. Place: Association of Research Libraries, Washington, D.C.

Date: June 8, 1973

Program Personnel: W.R. Nugent, R.D. Morrison

Personnel Contacted: Dr. Stephen A. McCarthy, Executive Director
Duane E. Webster, Director of the Office of University Library Management Studies
Jeffrey J. Gardner, Management Research Specialist, Office of University Library Management Studies

Summary: A review of the NASIC program and a discussion of ARL participation in and commitment to the program.

14. Place: New England Center for Continuing Education, Durham, N.H.

Date: June 20, 1973

Program Personnel: R.D. Morrison

Personnel Contacted: Marian M. Colby, Director, New England Office of Statistics, Inc. (NEOSTAT)
Karl A. Van Asselt, Director, New England Municipal Center (NEMC)
Norman Thidman, Staff, New England Municipal Center (NEMC)
Professor Owen Durgin, Assistant Director, Resource Development Center, U. of New Hampshire

Summary: A discussion to assess NEOSTAT as a potential supplier of census data tape processing and NEMC as a potential user of NASIC services.

15. Place: NEBHE, Wellesley, Mass.

Date: June 22, 1973

Program Personnel: W.R. Nugent, R.D. Morrison

Personnel Contacted: Dr. Daniel Wilde, Director, NERAC

Summary: Initial negotiations regarding the provision of NERAC services through the auspices of NASIC

16. Place: New England Energy Policy Project, Boston, Mass.

Date: July 17, 1973

Program Personnel: W.R. Nugent, R.D. Morrison

Personnel Contacted: Richard Eely, Staff Director, New England Energy Policy Project

Summary: A discussion of the possibility of the provision of energy resources information services by NASIC.

17. Place: Bradley International Airport, Windsor Locks, Ct.

Date: July 18, 1973

Program Personnel: R. Ezaz

Personnel Contacted: Professor Everett Lee, University of Georgia
Professor L. Bouvier, University of Georgia

Summary: A discussion of the potential use by NASIC of Dr. Lee's services as a demographer and of the availability of applications software packages developed at the University of Georgia and the Oak Ridge National Laboratories for the census tapes.

18. Place: NEBHE, Wellesley, Mass.

Date: July 20, 1973

Program Personnel: W.R. Nugent, R.D. Morrison, R. Ezaz

Personnel Contacted: Walter I. Nissen, Jr., Staff Member, Information Processing Center, MIT

Summary: A discussion of the potential market for census tape services.

19. Place: NEBHE, Wellesley, Mass.

Date: July 24, 1973

Program Personnel: R.F. Miller, W.R. Nugent, R.D. Morrison

Personnel Contacted: Robert Landau, Science Information Association

Summary: A discussion of possible NASIC/SIA operational relationships.

20. Place: Washington, D.C. and environs

Date: July 24-27, 1973

Program Personnel: R. Ezaz

Personnel Contacted: a) Personnel of the Department of the Interior, the Federal Power Commission, the Department of the Treasury

b) Representatives of DUALabs and Westat Research, Inc.

Summary: a) Discussions regarding the availability of data bases in the area of energy resources for possible promotion and marketing by NASIC to the research community of the Northeast region.

b) Discussions regarding the use of available packages for promotion and marketing by NASIC of census data base services.

21. Place: Northeastern University, Boston, Mass.

Date: August 2, 1973

Program Personnel: R.D. Morrison

Personnel Contacted: Dr. Martin Essigmann, Dean of Research

Summary: A discussion of the potential market for use of NASIC services in the research programs at Northeastern University.

22. Place: Massachusetts Science and Technology Foundation, Wakefield, Mass.

Date: August 2, 1973

Program Personnel: R.D. Morrison

Personnel Contacted: Dr. J.P. Silvers, Director and Paul Kelly, staff

Summary: A discussion of possible cooperative endeavors between the two NSF-supported programs.

23. Place: Washington, D.C. and environs

Date: August 15-17, 1973

Program Personnel: D.M. Wax, R. Ezaz

Personnel Contacted: a) Personnel of the Department of the Interior
b) Staff of DUALabs and Westat Research, Inc.
c) R. Verderber and T. Quigley, NSF

Summary: a) Discussions about data base development by and for the agencies of the federal government in the area of energy resources and the possible availability of those data bases to the Northeast region's research community through the offices of NASIC.

b) Discussions regarding census tape applications packages and the potential market for census tape services in the Northeast. Also a discussion regarding the development of seminars to provide orientation to the census materials and their use in research.

c) A discussion about the change in NASIC administration with the appointment of D.M. Wax as Acting Director and of the relationship of the Office of Science Information Service of the Foundation to the program.

24. Place: NEBHF, Wellesley, Mass.

Date: August 27, 1973

Program Personnel: R.F. Miller, D.M. Wax, R.D. Morrison, R. Ezaz

Personnel Contacted: Robert Gignilliat, User Services staff, DUALabs

Summary: Discussion of the uses of census tapes and related data banks in research and of the user service efforts necessary to support the marketing of such services.

25. Place: NEBHE, Wellesley, Mass.

Date: September 4, 1973

Program Personnel: D.M. Wax, R.F. Miller, R.D. Morrison

Personnel Contacted: Robert Rolla, President, NERComP

Summary: Further discussions of NERComP/NASIC potential relationship, both immediate and long term.

26. Place: St. Paul, Minn.

Date: September 13-14, 1973

Program Personnel: D.M. Wax

Personnel Contacted:
a) Dr. James Carmon, Director of Computer Center
Miss Margaret Park, Director of Information Center, Georgia Information Dissemination Center (GIDC)
b) Peter Schipma, Manager, Information Sciences, IITRI
c) Robert Verderber, OSIS, NSF
d) Melvin Weinstock, ISI
e) Gerald Lazorick, Director, Mechanized Information Center, Ohio State University
f) David LaKamp, Smithsonian Science Information Exchange

Summary:
a) Discussion of the coming NASIC site visit to GIDC.
b) Discussion of the coming NASIC site visit to IITRI.
c) Discussion of NASIC progress.
d) Discussion of potential NASIC brokerage of ISI information services.
e) Discussion of the coming NASIC site visit to OSU.
f) Discussion of potential NASIC brokerage of SSIE information services.

27. Place: NEBHE, Wellesley, Mass.

Date: September 14, 1973

Program Personnel: R.F. Miller, R.D. Morrison

Personnel Contacted: Carlos Cuadra, System Development Corporation
Judith Wanger, System Development Corporation

Summary: Discussion of application of SDC on-line services to the MIT experiment and eventual brokering by NASIC to the region.

28. Place: University of Georgia, Athens, Ga.

Date: September 18-19, 1973

Program Personnel: D.M. Wax, R.D. Morrison, J.J. Gardner (ARL), A.R. Benenfeld (MIT)

Personnel Contacted: Dr. William Pelletier, Provost
Dr. James Kenney, Associate Provost
Dr. Robert Anderson, Vice President for Academic Affairs
Dr. Charles Douglas, Director of General Research
Dr. James Carmon
Margaret Park
John Edwards
selected personnel of GIDC.

Summary: Conducted institutional survey and negotiations for use of GIDC services during experiment at MIT.

29. Place: NERComP, Cambridge, Mass.

Date: September 24, 1973

Program Personnel: D.M. Wax

Personnel Contacted: Professor J.F. Reintjes (MIT)
Robert Rolla, President, NERComP

Summary: An initial discussion on the development of alternative models for NASIC organization and operations.

30. Place: University of Pennsylvania, Philadelphia, Pa.

Date: October 1, 1973

Program Personnel: D.M. Wax

Personnel Contacted: Richard DeGennaro, Director of Libraries
Randolph Hock, Library Staff, University of Pennsylvania

Summary: A discussion regarding the use of the University of Pennsylvania as a test site for the provision of NASIC services.

31. Place: Washington, D.C.

Date: October 2, 1973

Program Personnel: R. Ezaz

Personnel Contacted: William Creager, Capital Systems Group, Inc.

Summary: Capital Systems Group, Inc. was briefed on RFP to perform regional market analysis.

32. Place: Mitre, Inc., Bedford, Mass.

Date: October 2, 1973

Program Personnel: D.M. Wax, R.D. Morrison

Personnel Contacted: Charles Burgess, QEI, Inc.
John Kuipers, QEI, Inc.
Dr. Rodney Thorpe, QEI, Inc.
Robert Labonte, Mitre
David Willard, Mitre
John Evans, Mitre
William Amory, Mitre

Summary: Review of the MITRIX message communication system.

33. Place: Boston, Mass.

Date: October 3, 1973

Program Personnel: A.D. Ferguson, R.F. Miller

Personnel Contacted: National Commission on Libraries and Information Science (NCOLIS)

Summary: Testimony relating to the role and importance of region-based programs, such as NASIC and NELINET, in the provision of information services.

34. Place: University of Connecticut, Storrs, Ct.

Date: October 4-5, 1973

Program Personnel: D.M. Wax, R.D. Morrison, J.J. Gardner (ARL)

Personnel Contacted: Kenneth Wilson, Vice President for Academic Affairs
Hugh Clark, Acting Dean of the Graduate School
Dr. Daniel Wilde, Director, New England Research Application Center (NERAC)
Paul Hangstenberg, Regional Manager, NERAC
John McDonald, University Librarian
Norman Stevens, Associate Librarian
Dr. Everett Ladd, Director, Social Science Data Center (SSDC)
other staff members of SSDC

Summary: Survey of NERAC and Social Science Data Center and discussion of eventual brokering by NASIC to region.

35. Place: Princeton, N.J.

Date: October 10-11, 1973

Program Personnel: D.M. Wax

Personnel Contacted: Dr. Edward Weiss and Robert Verderber, OSIS, NSF
Dr. Gustave Harrer, Director of Libraries, University of Florida
Hugh Atkinson, Director of Libraries, Ohio State University
Richard DeGennaro, Director of Libraries, University of Pennsylvania.

Summary: Delivery of paper at fall meeting of EDUCOM and general discussion of NASIC progress.

36. Place: NEBHE, Wellesley, Mass.

Date: October 11, 1973

Program Personnel: D.M. Wax, R.F. Miller, R.D. Morrison, R. Ezaz

Personnel Contacted: William Creager, President, Capital Systems Group, Inc.

Summary: Discussion of RFP for a regional market survey for NASIC.

37. Place: Illinois Institute of Technology Research Institute (IITRI)
Chicago, Ill.

Date: October 18-19, 1973

Program Personnel: D.M. Wax, R.D. Morrison, A.R. Benenfeld (MIT)

Personnel Contacted: Dr. Martin Klein, Director, Chemistry Research Division
Peter Schipma, Manager, Information Sciences
selected personnel of the Information Center.

Summary: Conducted institutional survey and negotiations for brokering of IITRI services to the region by NASIC.

38. Place: Warren, Vt.

Date: October 24-25, 1973

Program Personnel: D.M. Wax

Personnel Contacted: NEBHE Executive Committee and NEBHE Board

Summary: A general discussion of NASIC operations and progress.

39. Place: Campus Based Information Systems (CBIS) and Knowledge Availability Systems Center (KASC), University of Pittsburgh, Pittsburgh, Pa.

Date: October 30-31, 1973

Program Personnel: D.M. Wax, R.D. Morrison, J.J. Gardner (ARL)

Personnel Contacted: Dr. E.J. Shoben, Vice Provost for Graduate Study and Research
Professor Alan Kent, Director, Office of Communications Programs
Edward Howie, Director, KASC
selected personnel of the CBIS

Summary: Conducted institutional survey.

40. Place: Mechanized Information Center (MIC), Ohio State University, Columbus, Ohio

Date: November 1-2, 1973

Program Personnel: D.M. Wax, R.D. Morrison, J.J. Gardner (ARL), A.R. Benefeld (MIT)

Personnel Contacted: Dr. John Bonner, Vice President for Educational Services
Hugh Atkinson, Director of Libraries
Gerald Lazorick, Director MIC
selected personnel of MIC

Summary: Conducted institutional survey and negotiations for brokering MIC services to the region.

41. Place: Association of Research Libraries, Washington, D.C.

Date: November 5, 1973

Program Personnel: D.M. Wax

Personnel Contacted: Duane Webster and Jeffrey Gardner, Office of Management Studies

Summary: A general discussion of NASIC operations and progress.

42. Place: NEBHE, Wellesley, Mass.

Date: November 7, 1973

Program Personnel: D.M. Wax, R.F. Miller, R.D. Morrison

Personnel Contacted: NASIC Technical Council

Summary: Meeting of NASIC Technical Council

43. Place: NEBHE, Wellesley, Mass.

Date: November 9, 1973

Program Personnel: A.D. Ferguson, R.F. Miller, D.M. Wax

Personnel Contacted: Dr. Edward C. Weiss and Robert Verderber, OSIS, NSF
Professor J.F. Reintjes, MIT

Summary: NSF site visit to evaluate NASIC operations and progress.

44. Place: NEBHE, Wellesley, Mass.

Date: November 13, 1973

Program Personnel: A.D. Ferguson, D.M. Wax, R.F. Miller

Personnel Contacted: NASIC Advisory Board

Summary: Meeting of NASIC Advisory Board

45. Place: Massachusetts Institute of Technology, Cambridge, Mass.

Date: November 14, 1973

Program Personnel: D.M. Wax

Personnel Contacted: Dr. John Rothman, New York Times Information Bank
Professor J.F. Reintjes
Natalie N. Nicholson, Director of Libraries
other library staff members of MIT.

Summary: A discussion of the capabilities of the New York Times Information Bank and of the possibilities of providing access to that data bank through NASIC.

46. Place: NERComP, Cambridge, Mass.

Date: November 15, 1973

Program Personnel: D.M. Wax

Personnel Contacted: R. Rolla, President, NERComP; R.S. Marcus, MIT

Summary: The initial formulation of service and user interface models for NASIC.

47. Place: Stanford University, Stanford, Calif.

Date: November 26-27, 1973

Program Personnel: D.M. Wax, J.J. Gardner (ARL)

Personnel Contacted: David Weber, Director of Libraries
Douglas Ferguson and other members of Stanford University library staff.

Summary: a) Presentation to library staff members on NASIC objectives and progress.

b) Site survey on information services available at Stanford University.

48. Place: University of California, Berkeley and Los Angeles, Calif.

Date: November 28-29, 1973

Program Personnel: D.M. Wax, J.J. Gardner (ARL)

Personnel Contacted: a) Charles P. Bourne, Director, Institute of Library Research
Jay L. Cunningham, Director, University-wide Library Automation Program, University of California at Berkeley

b) William Kehl, Director, Campus Computing Network
R. Bruce Briggs, Manager, Center for Information Services
Page Ackerman, Director of Libraries
other members of the library staff, University of California at Los Angeles.

Summary: a) Discussion of the planned expansion of CIS services to serve the entire University of California and possibly the California State University and College System.

b) Site survey on the operations of CIS and discussion of possible provision of CIS services in the Northeast through NASIC.

49. Place: University of Florida, Gainesville, Fla.

Date: December 12-13, 1973

Program Personnel: D.M. Wax, J.J. Gardner (ARL), A.R. Benenfeld (MIT)

Personnel Contacted: Dr. Robert Bryan, Associate Vice President for Academic Affairs
Dr. Gustave Harrer, Director of Libraries
Robin Fearn, Assistant Director of Libraries - Systems
other members of the University of Florida community and library staff.

Summary: Conducted institutional survey.

50. Place: North Carolina Science and Technology Research Center, Research Triangle Park, N.C.

Date: December 14, 1973

Program Personnel: D.M. Wax, J.J. Gardner (ARL), A.R. Benenfeld (MIT)

Personnel Contacted: Peter J. Chenery, Director
Becky Walker and other staff members

Summary: Conducted institutional survey

51. Place: Massachusetts Institute of Technology, Cambridge, Mass.

Date: January 2, 1974

Program Personnel: D.M. Wax

Personnel Contacted: Professor J.F. Reintjes, Director, Electronic Systems Laboratory
Dean Horn, Executive Officer, Sea Grant Project Office

Summary: Discussed upcoming meeting of National Academy of Engineering Panel on Marine Engineering Information and Data Exchange

52. Place: NEBHE, Wellesley, Mass. (via conference call)

Date: January 15, 1974

Program Personnel: A.D. Ferguson, R.F. Miller, D.M. Wax

Personnel Contacted: NASIC Advisory Board

Summary: Discussion of supplementary proposal submitted by NASIC to NSF.

53. Place: Florida Institute of Technology, Melbourne, Fla.

Date: January 17-18, 1974

Program Personnel: D.M. Wax, J.F. Reintjes (MIT)

Personnel Contacted: National Academy of Engineering Panel on Marine Engineering Information and Data Exchange

Summary: Discussed NASIC plans and possible mutual interests with the Panel.

54. Place: NEBHE, Wellesley, Mass.

Date: January 24, 1974

Program Personnel: D.M. Wax

Personnel Contacted: Frank Manning, Psychological Abstracts

Summary: Discussed plans of NASIC to expand services and include Psychological Abstracts

55. Place: Massachusetts Institute of Technology, Cambridge, Mass.

Date: February 7-8, 1974

Program Personnel: R.F. Miller, D.M. Wax, R.D. Morrison

Personnel Contacted: INTREX/NASIC Symposium attended by representatives of library schools, university libraries and major public libraries from throughout the Northeast.

Summary: Presentation on NASIC achievements to date and plans for the future.

56. Place: Washington, D.C.

Date: February 8, 1974

Program Personnel: D.M. Wax

Personnel Contacted: Dr. Carlos Cuadra, Manager, Education and Library System Department, System Development Corporation

Summary: Discussed means by which NASIC and SDC could work together.

57. Place: Harvard University, Cambridge, Mass.

Date: February 20, 1974

Program Personnel: D.M. Wax, A.R. Benenfeld (MIT)

Personnel Contacted: Special Libraries Association, Boston Chapter

Summary: Presentation on NASIC achievements and plans

58. Place: Boston, Mass.

Date: February 27, 1974

Program Personnel: D.M. Wax

Personnel Contacted: Leo Roomets, Director of Computer Services, Massachusetts State College Computer Network

Summary: Discussion of capabilities of the network and possible relationship to NASIC.

59. Place: University of Massachusetts, Amherst, Mass.

Date: February 28, 1974

Program Personnel: R. Ezaz

Personnel Contacted: Professor Guy Lewis

Summary: Delivery of purchased census materials and discussion of possible future use.

In addition to the above visits and conferences, the NASIC staff had frequent meetings with representatives of MIT, QEI, Inc., and Capital Systems Group, Inc., relating to contract negotiations and management. These contacts have been almost on a daily basis and are too numerous to list individually.

VI. FINANCIAL SUMMARY

A. NSF Development Fund Expenditures

Program Month	Expenditure Rates		Cumulative Expenditures	
	Projected $	Actual $	Projected $	Actual $
March 1973	16,154	4,072.05	16,154	4,072.05
April	14,832	4,358.19	30,986	8,430.24
May	25,440	8,466.12	56,426	16,896.36
June	25,566	10,227.38	81,992	27,123.74
July	23,170	12,400.04	105,182	39,523.78
August	38,310	15,680.62	143,492	55,204.40
September	33,805	23,566.59	177,297	78,770.99
October	31,059	20,362.05	208,356	99,133.04
November	32,380	34,778.14	240,736	133,911.18
December	35,950	41,648.73	276,686	175,559.91
January 1974	38,134	27,777.37	314,820	203,337.28
February	40,680	18,552.78	$355,500	221,890.06
Total Requested (First year)	$355,500			

The substantial carryover is the result of several factors including a delay in the completion of program staffing, a decrease in technical contract expenditures resulting from elimination of the software evaluation activity, and a delay in contractor billing cycles.

B. Matching Contributions Record

NEBHE's contribution to the program in the first year totaled $6843 including 10% of the Principal Investigator's salary, related benefits, indirect charges and equipment depreciation. MIT, in the first year,

contributed $25,500, primarily in the form of the time of library staff members and of advisors to the ESL staff and in space allocation. The cumulative contribution of other program participants is estimated at $11,500 (25 days at $100 per day and $9000 relating to a NERAC/University of Connecticut study on providing machine readable services through the university library). The total of matching contributions for the first year is therefore approximately $43,800.

C. NASIC Search Services Account

Through the first year of NASIC activities, billings for services rendered totaled $330.74. The balance of the Search Services Account on February 28, 1974, was $0.

APPENDICES

A. NASIC at MIT, Phase I Report - A.R. Benenfeld, M.E. Pensyl, R.S. Marcus, J.F. Reintjes, Electronic Systems Laboratory, Massachusetts Institute of Technology, March 1974.

B. Effectiveness and Cost-Effectiveness Considerations for NASIC Information Services Operation - J.W. Kuipers, F.W. Lancaster and R.W. Thorpe, QEI, Inc., October 1973.

C. A Study of the Feasibility of Marketing Bibliographic and Census Data Base Products and Services via the Northeast Academic Science Information Center - Capital Systems Group, Inc., January 1974.

D. A Survey of Timesharing Computer Service Organizations in the Boston Area - William D. Mathews, September 1973.

E. Survey Questionnaires and Reports on Centers Visited, September - December 1973.

F. NASIC Bibliography, March 1974.

G. NASIC -- A Regional Experiment in the Brokerage of Information Services - David M. Wax and R.D. Morrison, Jr., October 1973.

H. Some Comments on the Present and Future Role of NASIC - Alan M. Rees, November 1973.